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USSR Report

ENERGY

No. 64



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ELECTRIC POWER

INCREASED ELECTRIC POWER PRODUCTION IN BELORUSSIAN SSR

Minsk ZVYAZDA in Belorussian 15 May 81 p 2

[Interview with H. M. Khartanovich, head of the BSSR Main Production Administration of Power and Electrification, by BELTA correspondent U. Sverkunou; date and place not specified: "High Voltage"]

[Text] We generally call this branch a determining industry. Indeed, all aspects of our lives are linked with power engineering. It promotes the accelerated development of industry, retooling of agriculture, and substantially eases our daily lives.

Today one cannot imagine Belorussia without mighty power generating plants, an extensive network of power transmission lines and heat supply and distribution systems. A large degree of the credit for this goes to the republic power system, which celebrates its 50th anniversary on 15 May.

On the eve of this event, BELTA correspondent U. Sverkunou asked H. M. Khartanovich, chief of the BSSR Main Production Administration of Power and Electrification, to talk about the birth and development of this industry.

[Answer] We consider that our history dates from the day the Belorussian GRES came on-stream. One of this country's first 30 large power generating stations, it was constructed as part of the Lenin GOELRO plan. And soon after it came on line, when Mogilev and Vitebsk began receiving power, G. M. Krzhizhanovskiy signed an order calling for organization of a Republic State Electric Power Systems Administration. The transmission lines of the first Belorussian power system were quite short by today's scale -- only 112 kilometers.

[Question] For purposes of comparison, what is the total mileage today?

[Answer] Last year power transmission lines, which cover the entire republic in a dense network, totaled more than 200,000 kilometers. Growth and development of the power system was promoted by construction of large new power generating plants. Each of them was an important landmark along the road of development of this republic: power stations were becoming increasingly larger and more sophisticated. The Vasilevichi and Minsk TETs-3, for example, were the first in this republic to install high-pressure equipment. The Berezovka GRES was the republic's first

block-unit type. This same principle was applied at the gigantic Belorussian generating plant at Novolukoml', although the units here were actually Volotovskiy block units.

[Question] Neoriniy Mikalayevich, any country could certainly envy the pace at which the Belorussian power system developed: generation of electric power increased more than 8000-fold during the years of Soviet rule! And when one recalls that during the Great Patriotic War all power generating plants and central heating plants were demolished, the achievements seem fantastic. What caused such a rapid growth?

[Answer] I can give an unequivocal answer to this question: the entire nation helped this republic. Immediately after Belorussia was liberated from the German-fascist invaders, for example, special power generator trains were sent to us from the RSFSR to provide power for factories and the general public until the power generating plants could be rebuilt. Incidentally, throughout the years power industry construction crews have also contained many representatives of the other union republics. Thanks to the fraternal assistance of all union republics, the Belorussian power system was transformed into one of the nation's largest. It is part of our country's northwestern power system, and is linked by power transmission lines to power enterprises in many oblasts of the European part of the USSR. Power generated at stations in this republic is transmitted to Smolenskaya, Bryanskaya, and Leningrad oblasts, while we receive power from the Ukraine and the Baltic. A considerable amount of electric power is exported to Poland and the GDR.

[Question] The 26th CPSU Congress devoted considerable attention to conservation of fuel and energy resources. What is being done in this area by Belorussian experts?

[Answer] In the 10th Five-Year Plan we achieved a substantial decrease in specific fuel consumption -- the present figure is 300 grams per kilowatt-hour, which is considerably below the industry average. The work force of our flagship facility, the Lukoml' GRES, announced a thrift campaign. It is one of the leaders in the competition among this nation's power industry enterprises. Many innovations developed by the people at Lukoml' have been adopted at other generating stations as well, which has saved the nation millions of tons of fuel. Here is a recent example. A change in the arrangement of feeding air into the fireboxes saves an entire train-load of fuel each year on each generating unit. This innovation by the people at Lukoml' has been granted official innovation status and has been adopted by dozens of electric power stations. It has also been adopted at the Kostroma and Irikliński GRES. Based on performance results in the 10th Five-Year Plan, the Lukoml' Power Generating Station was awarded the Badge of Honor.

[Question] What successes have been achieved by the Belorussian power system as a whole?

[Answer] The five-year plan target was achieved almost one month ahead of schedule, with above-target production of more than 2 billion kilowatt-hours of electric power. A great many Belorussian power engineers have been awarded decorations and medals. They include M. V. Ushakov, maintenance engineer of the Minsk municipal electric power system. The Red Banner of Labor was added to the combat decorations he received as a partisan. He took part in rebuilding the complex power system of the Belorussian capital after the war, trained a great many qualified specialists, and has himself been an example of discipline and reliability. This quality is one of the most important ones for a power engineer. Government decorations for shock-work

labor have also been awarded to senior boiler tender A. D. Badzyaka at Minsk TETs-3, I. A. Loseu, lathe operator at the Belorussian GRES, S. N. Paznyak, electrician at the Lukoml' GRES, V. I. Tarasau, maintenance engineer at the Mogilev Electrical Power System Enterprise, plus many others. Our industry has excellent development prospects in the current five-year plan. For example, construction will begin on a nuclear electric power and heating plant near Minsk, which will supply a large part of the electric power and heat requirements of the Belorussian capital. One result will be a substantial reduction in consumption of organic fuel, which will mean less environmental pollution. Vitebsk will receive its own nuclear "boiler house," which will be used only to provide heat. We are attaching decisive significance in the 11th Five-Year Plan to construction of new power transmission lines. This is connected with the development of medium and small cities and towns, the industry of which will be requiring increasing electric power. New high-voltage power lines will be run to Lida, Borisov, and Mozyr'. Superhigh-voltage 750 kv lines will carry an entire "river" of electricity from the Ignalina Nuclear Power Plant in Lithuania. There is a great future in store for high-voltage power transmission, and not only in the technical sense. High voltage is a symbol of the operation of the Belorussian power system, which has become a most important branch in the growth and development of industry.

3024

CSO: 1811/53

ELECTRIC POWER

HIGH-VOLTAGE DIRECT-CURRENT ELECTRIC TRANSMISSION LINE DESCRIBED

Moscow KRASNAYA ZVEZDA in Russian 16 Apr 81 p 4

[Article by doctor of technical services and deputy director of the Scientific Research Institute of High-Voltage Direct-Current Electric Power Transmission
A. Posse: "Power Engineering"]

[Text] "Carry out at an accelerated pace the construction of thermal electric power stations using coal from the Ekibastuz and Kansk-Achinsk basins. Commission the first phase of the 1,500-kV Ekibastuz-Center direct-current electric transmission line."

(Basic Directions for the Economic and Social Development of the USSR for the Years 1981-1985 and for the Period to 1990)

The Ekibastuz giant of the power industry began construction four years ago. During the 26th party congress, its builders reported that at the first of five planned "four-million-watt" electric power stations, a third power generating set with an output of 500,000 kW had been put into operation. Thus, the total output of this thermal electric station reached 1.5 million kW.

In many respects this power complex in northern Kazakhstan will become a unique industry installation. There are thick coal seams here at a shallow depth, which makes it possible to work them in the cheapest manner--open-pit mining. Today the cost of mining a ton of coal is only one and a half rubles. The reserves will last for a long time, which guarantees the prolonged generation of inexpensive electric power.

The production of electric power in Ekibastuz, however, is not the only thing being carried out in a new way. The problem of transmitting this power is being solved in an unusual manner. We specialists of the Scientific Research Institute of High-Voltage Direct-Current Electric Power Transmission (NIIPT) are particularly proud of our contribution to the solution of this problem of Statewide significance.

The fact of the matter is that a 1,500-kV direct-current line 2,400 km long will be employed for the first time in world practice to transmit power to the country's center. We will note that up until now the extent of the longest lines did not exceed 1,400 to 1,700 km. The second, unusually high parameter is the power trans-

mitted. In the nominal operational mode the figure is 6 million kW with up to 7.8 million kW during overloads. The capacity of existing high-voltage lines does not exceed 2.5 million kW.

The main advantage the new electric transmission lines have over the alternating-current lines is that there is no longer a need for powerful compensating units. The lines are simpler and cheaper in their construction. It is easier to accomplish various connections and bring about the parallel operation of different sources. This is important for the operation of electric power stations in the USSR Unified Power System. Moreover, environmental safety can be insured with these lines even when the conductor is suspended lower than usual. This, in turn, simplifies and reduces the cost of construction.

What is the design like for the electric transmission lines being built? The generation of electric power at the GRES proceeds in the usual manner and the alternating current is "removed" from the generators. It is converted to direct current at the transmitting substation. At the receiving substation the reverse happens--the direct current is transformed to alternating and is infused through transformers into the electric network of the Central Power System, from which it goes to the consumer.

A direct-current electric transmission line is planned for construction during the 11th Five-Year Plan with one converter installed at the substations. In the future, a converter will be introduced yearly at the substations. After this project is completed, the Central Power System will receive annually 42 billion kWh of electric power, cheaper in comparison than the power generated in the country's European sector. Such an amount of electricity is sufficient for supplying consumers in several industrial cities.

Heretofore, scientists and design and planning organizations have developed original technical solutions and have tested prototypes of equipment for the future 1,500-kV transmission line. In the plans of the scientists, however, are designs for more powerful direct-current lines.

9512

CSO: 1822/158

ELECTRIC POWER

WORK CONTINUES ON PERMSKAYA GRES CONSTRUCTION

Moscow SEL'SKAYA ZHIZN' in Russian 15 Apr 81 p 6

[Article by I. Zakirov: "A Giant of the Power Industry is Erected"]

[Text] "Commission the capacities of the Permskaya GRES."

(From the "Basic Directions for the Economic and Social Development of the USSR for the Years 1981-1985 and for the Period to 1990").

The construction of a giant of the domestic thermal power industry whose overall rated output is calculated to be 4.8 million kW got underway near the small district settlement of Dobryanka. I had occasion to visit here for the first time more than five years ago, when the preliminary work had only just begun. Sites were cleared in the dense forest with power saws and logging tractors. A railroad siding and highway were laid to the primary site of the GRES.

Since that time, of course, impressive changes have taken place here. There where one previously could hear the wind in the taiga, industrial buildings, blocks of multistory dwellings, cultural and general establishments and children's schools rose up in full growth. Purification structures, a boiler plant and other engineering supply lines are operating full strength.

The woodworking shop is in production; the fitting shop is just about ready to go into operation and in the first half of this year, a major installation of the construction base—a concrete-mixing plant—will be commissioned.

A multitude of excavators, bulldozers and other types of equipment is concentrated on the site of the main structures. They continue to remove earth under the foundation of the main GRES building. The gigantic smokestack continues to rise higher and higher over the taiga. It is being created by builders of the "Spetszhelezobetonstroy" trust.

More than 3,000 persons from various fields are currently engaged in the construction of the Permskaya GRES. The work-team collectives of carpenters under V. I. Smirnov, finishers under P. Ya. Bogdanov, machine operators under G. A. Grebnev and concrete workers under N. A. Saykinov have distinguished themselves in socialist competition in honor of the 26th CPSU Congress. Even now they are providing

an example of the successful execution of the tasks of the first year of the 11th Five-Year Plan.

In the near future, the number of power-plant construction workers in the Dobryanka district should double--more and more new work detachments are arriving here from many of the country's oblasts and republics.

Participants in this All-Union Shock Construction Project are filled with resolve to accomplish with credit the task set before them by the party and the government--to commission two 800,000-kW power-generating sets at the Permskaya GRES during the 11th Five-Year Plan. When all the planned power units begin operating at full capacity, the Permskaya GRES, according to the designers' calculations, will begin to provide a little more than twice the electric power generated at all the other stations presently operating in the western Urals. Current from here will go not only to cities and villages along the Kama but also to other oblasts of the Nechernozem'ya.

9512

CSO: 1822/158

ELECTRIC POWER

SAYANO-SHUSHENSKAYA GES READIED FOR SPRING FLOODS

Moscow PRAVDA in Russian 26 Apr 81 p 2

[Article by PRAVDA correspondent V. Prokushev and OGNI SAYAN editor G. Kokukhin: "Before the Great Water"]

[Text] The spring sun generously warms the slopes of the Sayan mountains. With each passing day the water level rises in the reservoir of the Sayano-Shushenskaya GES. Only just recently its discharge—the overfall from the head to the tail race—did not exceed 250 m³/s, while now the figure is twice as great. The heated tension of the job reigns at the Karlovskiy site. All the sections of the great construction project prepare for the passage of the flood waters.

"Builders, this is the eve of a very important test," said chief project engineer of the Sayano-Shushenskaya GES A. Yefimenko. For the first time they would have to test the dam proper at the high elevations using flood waters of great force.

The crest of the dam shot up to within 150 m of the peaks of the surrounding mountains, while individual blocks rose even higher. The teams of A. Reshetnikov, Yu. Vanchagov, F. Gorbanev, USSR State Prize Laureate M. Mashchenko and others work here. Heated socialist competition has developed in the collective directing the major construction. V. Smyslov's team has held onto first place for two weeks in a row. The flag of labor glory has been raised over the construction site in the team's honor. Work is also proceeding apace on the right-bank blocks. This section is difficult and requires a high degree of skill. M. Poltoran's team must join the "shoulder" of the concrete arch with the cliff overhanging the river in such a way that not a single drop of water seeps through at the junctions. The collective could not borrow experience in this matter. For five years now the dam builders and concrete workers have been permanently "lacing" the dam's solid right-bank portion to the shore. Each spring the violent onset of the Yenisey's waters tests the quality of the work here. Once it happened that the river came up to the builders' feet, but then they pulled the blocks up out of the water. Today the team has an accurate calculation. The time gained helps them to remove the blocks at the first appearance. The other collectives began doing this, which helped the hydroelectric plant builders lay 5.7 million m³ of concrete in the hydrosystem ahead of schedule and aided them in preparing themselves safely for the passage of today's flood.

The teams of communist V. Agafonov and V. Dolin of the Krasnoyarsk section of "Gidromontazh" are doing shock-work. Here are experienced specialists, many of whom have also undergone training at the Krasnoyarsk GES.

The "Spetgidroenergmontazh" team of V. Demidenko, delegate to the 26th CPSU Congress and candidate for membership in the CPSU Central Committee, has just completed the basic work on the assembly of the turbine in the sixth of the hydroelectric generating units to be commissioned before the station is fully operational and has gone on to work on the seventh unit. On the day of voluntary communist labor, this leading collective installed the turbine stator ahead of schedule.

It was decided that the hydroelectric station would be switched over from an intermittent to a constant power delivery schedule during the period when the flood waters pass. This required the coordinated actions of the hydroelectric plant builders and the power engineers. The creative cooperation of the numerous participants in the construction of the electric station is reaping great benefits. However, interruptions do appear once in awhile in this well-tuned system. For example, the Krasnoyarsk Cement Plant did not deliver 30,000 t of high-quality plain cement in the first quarter of this year. Indeed, previously, the workers at this enterprise have frequently earned the Red Challenge Banner in competition with other suppliers. What, then, has happened?

As it turns out, the Krasnoyarsk workers were let down by the Kemerov office of "Kuzbassuglesbyt." Last year the cement plant took delivery from here of 30,000 t of coal less than was necessary. The situation did not improve in the first quarter of this year, either. As a result, the cement workers were forced to reduce the output of the rotary kilns. This leads to an overexpenditure of fuel and a reduction in the output and the quality of the cement. Not only the builders suffer from this shortcoming in Sayanogorsk, but also the builders on the BAM and in Tyumen' and the bridge-building sections in Siberia. The Krasnoyarsk workers write letters to Kuzbass, but they go unanswered.

Another acute problem is the delivery of electric power of the Sayano-Shushenskaya GES. The "Itatskaya" trust of "KATEnergostroy" has prolonged construction of a high-voltage substation. True, a Komsomol youth detachment has been sent here and work has picked up, but the suppliers are letting them down. The Sverdlovsk and Tashkent plants of the Ministry of the Electrical Equipment Industry have delayed delivery of air switches and power panels, without which the power of the Sayano-Shushenskaya GES turns out to be "barred" from reaching the end point of its journey.

Less than a month and a half remains until high water in the Sayan mountains. This means that it is a month and a half to the great flow of electric power. The builders and equipment manufacturers must hurry in order to commission the substation and the 500-kV Abakan-Itatskiy electric transmission line on time. We cannot allow a free discharge of water through the dam. This would cost the State dearly and would bring to nought the heavy preparatory work of the hydroelectric plant builders.

FUELS

PECULIARITIES OF DEVELOPING MANGYSHLAK OILFIELDS DESCRIBED

Moscow IZVESTIYA in Russian 15 Apr 81 p 2

[Article by E. Matskevich (Shevchenko-Karazhanbas-Kalamkas): 'Mangyshlak's Oil']

[Text] "...Speed up development of the oilfields on the Buzachi Peninsula." ("Main Directions for the Economic and Social Development of the USSR During 1981-1985 and During the Period up to 1990".)

The whole northern portion of the peninsula's map is covered with vertical blue hachure. It is salt marsh. The narrow and shallow Komsomolets Gulf goes into the land deeply, as if to cut across it. It is here, on the swampy shore, immersed by incoming sea water, that the drilling towers of the new Kalamkas oilfield have risen up. "The Buzachi Peninsula is a vast lowland, inundated by the surging winds of the Caspian Sea. The climate is arid, the air temperature ranges from 40-45 degrees to -30 degrees....The region lacks fresh water." These are lines I have taken from a geological party's report.

The chief of Komsomol'skneft' [Komsomol'sk Oil and Gas Recovery Production Administration], V. Kondakov, and I stand on the levee that separates the oilfield from the sea. Over several months, hundreds of dump trucks discharged 1½ million cubic meters of rock and soil into the salt water in order to erect a 32-km shield. High-capacity pumps discharge water over the levee. There will be wells here. Hundreds of them have already been drilled.

"Two years ago Kalamkas gave its first 70,000 tons of oil, and last year more than 1 million tons, while nowadays the flow is almost doubling," states V. Kondakov with unconcealed pride.

The drill rig stands on fill. Anything else is impossible—there is salt marsh all around. The heavy rigs are slid in, in the literal sense of the word, over rails. Three sleeping cars are hitched to the drill rig: for housing, eating, air-conditioning units, and a club section. People are laying rails across the swamp, dismantling the track that has been traveled over and laying it down again, in order to move forward.

"We call our rig an 'armored train,'" explains driller Ye. Yurupov. "It will help to gain time spent on erection, and it will operate no worse than on dry land."

Yusupov works in N. Ziganshin's brigade. It is famous for the fact that it had set a record here for penetration speed—2,500 meters per rig per month. This year it has committed itself to drilling 17,500 meters of hole and to reducing the time taken to turn each well over for operation by 1.5 days. Development of the field requires a pace that is fitting for the times. And the people who first set foot on the peninsula tried to speed up the way there for others. We came over an excellent route.

"An electric-power line has been extended over the peninsula, a 200-km oil pipeline is being laid to the port of Aktau, and there is a water main 70 km long," says my companion, second secretary of the Munaylinskiy Rayon Party Committee A. Pyatkin. "A plant for purifying and filtering water is being built. And later various pipelines, rigs, tanks, inside pump stations, bases and housing," the secretary ticks them off. "More than a quarter of a billion rubles have already been invested in developing the peninsula."

Munaylinskiy Rayon. The Buzachi Peninsula is its ground. In Kazakh "munayla" means oil. Many problems have fallen upon the young rayon and its management. The peninsula is being developed by organizations of Union ministries—Minnefteprom (Ministry of Petroleum Industry) and Minneftegazstroy (Ministry of Construction of Petroleum and Gas Industry Enterprises), several republic ministries of Kazakhstan, and dozens of different contracting and subcontracting organizations. The rayon is sparsely inhabited. A paradoxical detail: with a permanent population of 13,000 there are 16,000 workers. This is not a slip of the tongue. People are working at the oilfields basically under the rotating-duty method, which has proved itself well in many remote regions of the country. The watch is changed on an average of every 15 days. After working their time, the oilfield workers are sent home by aircraft—to Makhachkala, Groznyy, Alma-Ata and Baku.

The main fields—Kalamkas and Karazhanbas—are different in makeup and method of recovery. First of all, these are thick, highly viscous crudes. Under the ordinary method for recovering them, the beds yield no more than 15 percent of the reserves, but 40-60 percent is needed. In order to maintain the necessary formation pressure, at Kalamkas water of a special thickened composition is pumped into the well (Soyuzneftekhimprom), and at Karazhanbas fireflooding and steam enhanced-recovery methods are being tried at test wells (Soyuztermoneft'). The tests should yield a recommendation on the extraction of highly viscous unrecovered oil for similar oilfields in Bashkiria, Yakutia, Siberia and Kazakhstan.

At Karazhanbas it is planned to drill 10,000 wells. The experiments require studies and a major expenditure of manpower and resources. But even this year the oilfield should yield industrial crude. And it is very important here to combine the interests of science and production. The results of the experimental studies excite representatives of the science-and-production association located in Krasnodar, while the recovery plan excites the oilfield workers. Obviously, the time has come when a special oil-and-gas recovery administration, which would engage in both recovery and research, must be established at the oilfield. This would strengthen Karazhanbas with personnel and the appropriate equipment and would speed up its mastery. But Soyuztermoneft' is not hurrying to put this question to Minnefteprom, for recovery is not the main thing for this organization. But it is important for Buzachi, for Mangyshlak, and for the country.

We traveled all over the oilfields in an all-terrain vehicle for dozens of kilometers with oil-recovery workers V. Kondakov and A. Pyatkin. The salt marshes, the

sand, the fathomless whitish sky, and the vicious wind from the Caspian—it would seem to be an entirely lifeless land, but suddenly there are the openwork tops of the derricks and the silvery structures of clustered rigs on which interweavings of pipes, with oil pulsating from the depths, have been laid out.

"Two years ago there was nothing here," said V. Kondakov. "Even a helicopter would not have been able to choose a landing spot right away."

This year alone 123 wells and 4 clusters of rigs are to be started up here. Everywhere, development is associated with construction. While the drilling brigades and their processions move reliably about the Buzachi swamps, and while every 2 weeks they can go from the surface to a new source of crude, the people who are obliged to prepare for the reception of the earth's treasures do not always by far keep up with them.

The trouble is not the inefficiency of Mangyshlakneftegazstroy [Trust for the Construction of Oil and Gas Facilities at Mangyshlak] builders nor in the fact that such nut and nail has to be brought in over hundreds of kilometers. The lag occurs because of a lack of precision in the activity of the specialists from KazNIPIneft' [Kazakh SSR State Scientific-Research and Design Institute for the Oil Industry], who design the installations for the oilfields.

I. Zhaksimbetov, engineer for technical inspection of the NGU of Komsomol'skneft' [Komsomol'sk Oil Production Association], says:

"We often have to move ahead of the designers. For example, we started up the 46th cluster of rigs without their documentation; we coordinated only on the schematic diagram. We also erected the 41st according to our drawings. It seems that the designers, who are located in Gur'yev, are isolated from their main clients. They must be brought closer to Buzachi. Obviously, it is time to establish a group to develop the peninsula, with a center in the city of Shevchenko."

Apartments for the rotating-duty type settlements have risen up at Buzachi. The quarters here for rotating-duty type workers are being built up here soundly and for a long service life. In Kalankas there are clean, well-maintained dormitories, a club seating 300, a dining hall, a snack bar and a store. The first young saplings have been planted here.

But it is already clear today that the pace of development of the oilfields requires a tightening up of the support system. Secretary of the Mangyshlakskaia Oblast Party Committee V. Savchenko makes a simple arithmetic estimate for me. Buzachi, in time, will be equipped for 14,000 wells. On the whole, recovery will require two men per well, so 28,000 people will have to be settled here. It is necessary to speed up the construction and turnover of housing. Already this year alone 60 million rubles' worth of construction and installing work must be done for the oilfield workers. But Mangyshlakneftegazstroy can assimilate only about 40 million rubles. The question arises about organizing still another construction trust or housing-construction enterprise. Not only the rotating-duty settlements but also the center itself—the city of Shevchenko—needs construction, for the bulk of the oilfield workers will still live in the city.

The rotating-duty system is the real way out of the developmental difficulties. But it is very important that the personnel not feel that they are here on a trip. At Buzachi they are trying to do everything for this purpose. The majority of the

regular oilfield workers and builders, who have been proven at Uzen' and Zhetybay and the oilfields of Groznyy and Tyumen', are introducing their precious experience in developing the peninsula.

I've been told about the brigade of P. Krivosheyev from Mangyshlakneftegazstroy. The brigade had to be at Kalamkas to put in the main crude transfer-pumping station. The work had already proceeded to the end when it was observed that, through someone's inefficiency, painting the inside of the oil tank's cover had been forgotten.

Each of the tanks was 12 meters high and more than 20 meters in diameter. Thousands of cubic meters of water had already been pumped into them for a test. The water filled the tanks to within 2 meters of the top. Krivosheyev suggested building a raft of motor-vehicle tires and working on them, standing up. He was the first to vanish into the black opening of the tank, after fastening himself with an erector's belt. It was dark and stuffy. A floodlight had to be installed. People were relieved every 30 minutes. In 3 days the work had been completed.

A strong wind once whipped up high water and drove it across an unfinished section of the levee. Waves inundated the oilfield, threatening the drill rigs. Everyone who was at hand entered the struggle with the elements: oilfield workers, bulldozer operators and drivers. From 1800 hours in the evening until midnight they erected fill, obstructing the path of the water. And they beat the elements. All of them were rotating-duty type workers.

The participants in the first landing at Mangyshlak were dreamers. Two decades ago they drove at sunbaked Cape Melovoy a stake for the foundation of the first housing of the future city of Shevchenko, which today is called the incarnation of socialist trends in urban development. Much has been done here: a high-capacity seawater distillery that operates off a fast-breeder reactor, a gas-treatment plant and a plant for plastics that is unique in its operating equipment. These enterprises enable the district's raw-material resources to be used in more integrated fashion.

By the end of this year the 200 millionth ton of crude will have been recovered. The Buzachi Peninsula, whose riches are just now being opened up, is making its remarkable contribution here. Today it is yielding only a part of its valuable components. The specialists consider it desirable, because of this, to build in Shevchenko enterprises for intensive oil refining, which will enable the riches of Mangyshlak's underground to be used more completely. The new discovery opens up the way for new studies and prospects.

Buzachi is being built and being made habitable, and the geologists are going farther, to Mertvy Kultuk. By the end of the five-year plan Buzachi should yield almost a third of all Mangyshlak crude.

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FUELS

ACCOMPLISHMENTS, TASKS OF RSFSR GEOLOGISTS OUTLINED

Moscow SOVETSKAYA ROSSIYA in Russian 2 Apr 81 p 2

[Article by L. Rovnin, RSFSR Minister of Geology: "An Intense Search"]

[Text] The development of the country's economy is determined to a great extent by its mineral raw-materials base. This guidance by the 26th CPSU Congress serves as the basis for the activity of geological explorers of the Russian republic.

Right now RSFSR geological exploration is providing about 70 percent of the country's need for mineral resources. The result of the Tenth Five-Year Plan is the discovery of thousands of deposits of various minerals.

Today a good backlog of work starts has been established for a further rise in explored raw-materials resources for the 11th Five-Year Plan. New and promising regions have been found, and the scale of our notions about the Russian republic's underground riches has been expanded. It is now possible to determine more accurately the strategic directions for geological study.

Of course, one cannot pass by in silence the fact that the tasks set were not carried out completely in some important areas. Tyumen' geologists were not able to make up for a lag in the growth of oil reserves, although during the last 3 years of the five-year plan period they exceeded their plans. The task to confirm phosphate ore reserves in Yakutia was not completed. There were organizational shortcomings in drilling brigade activity. Problems of increasing prospecting operations in regions difficult of access, of building housing and production bases, and of developing transport ties caused serious concern.

Among many tasks, the exploration for oil and gas reserves in West Siberia remains one of the main ones. Deep drilling is to be doubled here. It is planned also to intensify geological research. Understandably, this scale of work requires that this district recruit ever newer specialists. More than 1,200 square meters of housing will be built for them. The prospecting will cover promising regions of the northern taiga and tundra part of Tyumenskaya Oblast and the Yamal Peninsula. We shall continue exploration of the Urengoy gas deposit, the world's largest.

Great hopes are also being placed on further prospecting for oil and gas in the Timan-Pechora Regional Production Complex, the Caspian depression, Yakutia, Orenburgskaya Oblast and Udmurtia. It is especially necessary to speak about the new East Siberian region, which covers Krasnoyarskiy Kray and Irkutskaya Oblast.

The problem of building up fuel and power-engineering resources will require stepped-up exploration for coal and peat, as well as renewable sources of energy--hot water and steam. During the 11th Five-Year Plan the geologists' forces will be concentrated on exploring for coking coal in the South Yakutia, Kuznetsk, Vorkuta and Kansk-Achinsk basins, for fuel shale in Saratovskaya Oblast, and for hot water and steam in Dagestan and on Kamchatka.

Geological exploration that involves prospecting and exploration for deposits of rich and easily upgraded ferrous and nonferrous metal ores, bauxites and phosphates is becoming important. These operations will be conducted at an accelerated pace in all the republic's promising regions, including the regions that make up regional production complexes.

These main concerns have been made the basis for the draft of our five-year plan. About 75 percent of all work will be concentrated in regions of Siberia, the North-east and the Far East, where the prospects are most encouraging.

The geologists see their participation in the solution of the foodstuffs program as a most important task. This consists in prospecting for and exploring deposits of apatites and phosphorites for making fertilizer; carbonaceous raw materials for liming acidic soils and for adding minerals to feeds; underground water for irrigation and water supplies; and construction materials for the buildup of agricultural complexes. This is especially pertinent to the RSFSR's Nonchernozem Zone.

The tasks that the 26th party congress set for the geologists are extensive and important. Their fulfillment will require further conversion to a more intensive path of development and use of the achievements of technical progress. Much depends also upon an improvement of planning. It should aim the whole geological exploration process at the final result--the discovery of new deposits of useful minerals. But if this is to be done, a number of problems must be solved.

Supporting the development of scientific research for the resolution of practical tasks is a complicated problem. The geological institutes that work in the RSFSR have done much to expand the republic's mineral raw-materials base. At the same time, scientific activity, especially in the area of prospecting for oil and gas, must be sharply intensified. The creativity of geological scientists must be applied to supporting the fulfillment of annual and five-year plans for growth of mineral resources. A most effective path is the development of localized prediction of deposits and the correct geological and economic assessment thereof.

Modern geophysical methods for prospecting for and exploring deposits must be developed. Especially for new areas of study. Thus, the geophysical methods applied in West Siberia proved to be poorly effective in East Siberia. The problem of developing seismic exploration posts with a large number of recording channels awaits solution. The scientists have developed such a station, but during this five-year plan the output of test models must be organized. I would like to see USSR Academy of Sciences institutes strengthen their activity in all scientific research in the area of prospecting and exploring for minerals.

It is also necessary to speak about those economic and planning "anomalies" that nowadays prevent the full use of the potentials of both geological organizations and the riches that they have discovered. The ministry is working to coordinate the plans for many industries. They express interest in various types of discovered resources, and we undertake detailed exploration. But in practice it often turns

out that some part of a deposit whose reserves have already been firmly established is not being developed. The state invests funds; we require that the geologists speed up the work, and we organize competition in completing exploration ahead of schedule so that deposits may be turned over quickly to the industrialists. But later on they are not even picked up on the books of the appropriate industry: their development is not called for either in the current five-year plan or in the next one. It is as if millions of rubles in expenditures had been frozen. Caught in this situation are 382 deposits of building materials, 59 of oil and gas, 740 of ferrous and nonferrous metals, 59 of coal, 14 of nickel and so on. Why such a wasteful expenditure of manpower and funds?

The fact is that ministries and agencies give the geologists the job of studying some certain deposit, but they do not then bear any responsibility for exploiting the natural resources. Therefore, they often may be left out of the plans. Would it not be better, before spending the money, to point out where it is that deep exploration is needed today? We consider that RSFSR Gosplans's Department of Mineral Raw-Material Resources, when setting tasks for industry, construction and agriculture, should coordinate the program for exploring for deposits with plans for assimilating them.

The effectiveness of expenditures on geological exploration depends greatly upon the supplying of materials and equipment and upon the outfitting of geologists. In recent years high-powered drill rigs, diverse geophysical and laboratory apparatus and all-terrain transport have been made available, and high-capacity computing centers have been established. At the same time, an intensification of geological research presents increased demands on geological-exploration equipment. We need lightweight mobile rigs for drilling holes to depths of 1½-2 km and of 7 km. Unfortunately, industry does not produce them.

Along with conquering regions of Siberia and the Far East, we continue to strengthen the development of prospecting and exploration in the country's central oblasts. A remarkable achievement of Russian oil explorers was the discovery during the 10th Five-Year Plan of the Astrakhan' deposit. The "Main Directions" had set the task: "Start to establish an industrial cluster for the recovery and treatment of gas and condensate, and also for the production of sulfur, based upon the Astrakhan' gas-condensate deposit." Here we met with the problem of corrosion. The local raw material contains a large amount of hydrogen sulfide and carbon dioxide gas. Equipment made of ordinary metal does not withstand this aggressive medium for long. Much idle time results. The Ministry of Ferrous Metallurgy did not provide for the production of anticorrosion pipe. Because of this, exploration at the Astrakhan' deposit is not progressing. There were other discrepancies also in planning work volume and the support of that work with materials and equipment. USSR Gosplan should examine these questions attentively and eliminate disproportions.

The geologists' most complicated work is the delivery of freight to the sites for prospecting and exploration, especially to regions of the republic that are remote or difficult of access. Some cargo is regularly hauled by helicopter. As the work based on oil and gas progresses in East and West Siberia, the role of helicopters will increase still more. Cargo helicopters that can lift 20-30 tons of cargo and possess, in addition, loading and unloading mechanisms, are required.

The growing amounts of geological exploration also require the fundamental solution of social problems and problems of everyday living. These are becoming especially severe in light of the decisions of the CPSU congress. During the 10th Five-Year Plan 1.9 million square meters of apartments were built for the industry. The ministry had never introduced such an amount of housing. Now it is planned to build more than 2.5 million square meters. This is an enormous amount of work. The new five-year plan will be a serious test for the builders who are erecting geological settlements and production bases. We have done much work to develop the in-house method. Nevertheless, the demand for housing and cultural and domestic-amenity institutions still is not being completely satisfied by far. The contracting organizations--Ministry of Construction of Heavy Industry Enterprises, Ministry of Construction of Petroleum and Gas Industry Enterprises and Ministry of Industrial Construction--are working slowly at the facilities for the geologists. These ministries must consider the special specifics of the trailblazers' work.

A further strengthening of the mineral raw-materials base poses tasks of raising labor productivity and the effectiveness and quality of geological exploration. Fulfilling these tasks is closely connected with the development of socialist competition.

The decree, "On All-Union Socialist Competition for Successful Fulfillment and Overfulfillment of Five-Year Plan Tasks," which was adopted a few days ago by the CPSU Central Committee, the USSR Council of Ministers, the AUCCTU and the Komsomol Central Committee, is finding the enthusiastic approval of geological explorers. There is no doubt that the RSFSR's underground explorers, guided by 26th CPSU Congress decisions, will gladden the motherland with new discoveries.

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FUELS

WORK OF TYUMEN' GEOLOGISTS PRAISED

Moscow KOMSOMOL'SKAYA PRAVDA in Russian 5 Apr 81 p 1

[Interview with Deputy USSR Minister of Geology Roman Avakovich Sumbatov by outside correspondent T. Romanovskaya: "Businesslike Romanticism"]

[Text] Our outside correspondent T. Romanovskaya holds a conversation with Deputy USSR Minister of Geology R. A. Sumbatov.

[Question] Roman Avakovich, today our country observes Geologists' Day--the professional holiday for those who explore underground. Thanks to their work, pits and oilfields emerge, mines and plants are built, and settlements and towns grow. The geologists also face important tasks during the 11th Five-Year Plan. Let us recall: the 26th CPSU Congress noted the great importance of further developing the West Siberian Regional Production Complex--the country's main fuel and power base....

[Answer] It will not be an exaggeration if we say that the development of this district and its future are linked with the geologists' discoveries. In the past 20 years West Siberia has occupied one of the central roles in our state's economic life. The recovery of oil and gas in West Siberia and the transport thereof to the European part of the country, said Comrade L. I. Brezhnev at the party congress, are to be made the most important elements of the energy program, not only for the 11th but also for the 12th Five-Year Plan. I will not bore you with the figures--they are well enough known, but I want to remind you that even today every other ton of the country's coal and every third cubic meter of its gas is mined or recovered in Siberia.

During about three five-year plan periods a highly effective complex has been created under the North's severe conditions. Tyumenskaya Oblast alone should produce during the current five-year plan as much oil as was obtained during all three preceding five-year plans together and twice as much gas. Many oil and gas fields have already been discovered here. But new ones must be sought in order to prepare a base for a systematic increase in the recovery of these valuable power-engineering raw materials for the long term.

Work at local sites is a constant test of firmness, courage and endurance. Not everyone can pass this test. The most committed and the strongest hold out.

Right now about 25,000 young men and women are working in the production association of Glavtyumen'geologiya [Main Administration for the Geology of Tyumenskaya

Oblast). The most important sections are entrusted to them. It is here that they find their acceptance, their place in life. Ten years ago Lev Yevdokimov, graduate of the Kuybyshev Polytechnical Institute, came to Siberia. The young specialist was sent to the Pravdinskaya Geological Prospecting Expedition in the North of Tyumenskaya Oblast. First he was a worker, then he was in charge of a drilling brigade. Right now Yevdokimov supervises the expedition's engineering-operations service. Lev Yevdokimov, a Leninist Komsomol Prize winner, recently became a member of the CPSU.

Nikolay Surovnev, a delegate to the 18th Komsomol Congress and a young scientist from the West Siberian Scientific-Research Institute for Geological Exploration for Petroleum, is engaged in solving a very interesting and complicated problem--the application of mathematics to geology, which is supposed to raise the effectiveness of geological exploration through the use of computers. For successes in this work Nikolay and his comrades have been awarded the title of Leninist Komsomol Prize winners.

One may also speak about Tat'yana Il'ina, who, after completing the Tyumen' Vocational and Technical School, came to work as a laboratory technicians in the Agan expedition. Right now she is a deputy of the oblast's soviet of people's deputies and is taking a correspondence course at the Saratov Tekhnikum for Geological Exploration for Petroleum.

[Question] Could you not dwell in more detail on the directions for further development of West Siberia? And what is the role of youth in developing its wealth?

[Answer] The main trend is a buildup in growth of oil and gas reserves for the further steady development of West Siberia's oil-recovery industry.

It is planned to almost triple drilling in this part of the country during the 11th Five-Year Plan, mainly through a maximum increase in labor productivity. This should be achieved by introducing progressive technology, improving the organization of work, and a rise in the effectiveness of utilization of technical equipment and resources. The slogan, "Not by Sheer Numbers but by Skill!" should be introduced firmly into practice. And Komsomol members are showing a good example in this important matter.

Right now many drilling-brigade collectives are penetrating more than 30,000 meters of deep hole per year. Let's take just the Komsomol Youth Brigade from the Meillon Geological Exploration Expedition, which Vladimir Makar heads. The youngsters surpassed the 30,000 mark several years ago, although the average penetration for the Ob' North, where they are working, is barely more than 15,000 meters. During the 10th Five-Year Plan this brigade fulfilled tasks for 6 years.

The Komsomol-Youth Brigade from the Urengoy Geological Exploration Expedition, which is under Hero of Socialist Labor N. Glebov, carried out plans for 8 years during the last five-year plan. This collective exceeded 2-fold the average annual penetration per brigade for the northern parts of Tyumenskaya Oblast.

And the well testers from the Yamal Oil Exploration Expedition, who are under Viktor Vustin, overfulfilled 3-fold the average indicator for testing per brigade: they tested 33 facilities instead of 11.

How were these successes achieved? Primarily through a high degree of work organization, mutual support, and the mastery of related trades. In such collectives the brigade supervisor-foreman, who not only organizes the work correctly but, the main thing, who forms a stable and reliable collective, has a major role.

Siberia gives us many problems. A lack of roads, enormous uninhabited spaces, a lack of built-up amenities....But note that the difficulties never have stopped the geologists.

11409

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PAST, PROSPECTIVE PROGRESS IN ERECTION OF MOST IMPORTANT PIPELINES RELATED

Moscow STROITEL'STVO TRUBOPROVODOV in Russian No 2, 1981 pp 28-30

[Article: "The Most Important Construction Projects of the 10th Five-Year Plan"]

[Text] During the 10th Five-Year Plan Minneftegazstroy [Ministry of Construction of Petroleum and Gas Industry Enterprises] executed a vast program of capital construction. Tenth Five-Year Plan tasks for contracting work and for putting fixed productive capital into operation were met ahead of schedule. Among the most important facilities that went into operation during the 10th Five-Year Plan were large-capacity facilities at oil and gas fields, gas-treatment plants, and pipelines of considerable length.

The region that provided for all the growth in oil recovery and 80 percent in gas recovery during the 10th Five-Year Plan was West Siberia. Multikilometer pipelines stretch out from this region.

A rapid work pace at the industry's most important construction projects was undertaken right at the start of the first year of the five-year period. In 1976 the Nizhnevartovsk-Kuybyshev oil pipeline was put into operation ahead of time, and sections of considerable length on the Punga-Vuktyl-Ukhta and the Ukhta-Torzhok gas pipelines were built ahead of schedule. This enabled the creation of a single arterial from Urengoy to Torzhok, providing for the arrival of gas from the Medvezh'ye field to the country's central and western regions via the Arctic Urals.

The builders achieved good indicators during the erection of gas-treatment plants (GPZ's). The largest of them was Nizhnevartovsk. The startup of capacity of the third phase of this GPZ in 1977, jointly with the introduction into operation of the Nizhnevartovsk-Parabel'-Kuzbass gas pipeline, enabled fulfillment of a substantial portion of the integrated program for gathering and treating Ob'-region casing-head gas and for transporting it to the Kuzbass.

Effectiveness in erecting GPZ's was occasioned by the use of such measures as intensifying the monitoring of work quality, improving work organization, introducing progressive technology, and using rational constructional structure. In order to reduce GPZ construction time, plans must call for a maximum degree of prefabrication of structure, use of outfitted-modular installation and lightweight articles, and improvement of the organizational structure of construction subunits, taking into account introduction of the brigade contract. In 1978 a fourth GPZ was built at Nizhnevartovsk, beating the standard periods.

The Mubarek GPZ was built with the use of advanced methods. In 1979, the second phase of this plant was turned over for operation. Its introduction permitted organization of the industrial operation of a number of fields that previously could not be used because of their high content of sulfurous gases.

During the first year of the 10th Five-Year Plan construction began on the large Orenburg-USSR Western Border gas pipeline, which right now is delivering gas to socialist countries. Envoys from CEMA member nations, in addition to Soviet builders, took part in the erection of this gas pipeline, which received the symbolic name "Soyuz." It is 2,750 km long. The power-engineering potential of the fuel being pumped is equivalent to the potentials of five power stations like the Bratskaya on the Angara. The total capacity of the compressor stations exceeds 1.5 million KW.

Advanced work methods, progressive technology and highly productive machinery were used to build the Soyuz gas pipeline. This unique gas pipeline was distinguished by new technical solutions, and it was equipped with the most modern means of automation and remote-control. The construction project, of gigantic length, where international brigades of several countries interacted, required especially precise organization of the work.

Large mechanized complexes that support a rapid work pace on the route were used during construction of the linear portion. A most important component of the huge complex was the welding operation. Nonturning joints on the Soyuz pipeline were welded by the separated flowline method, which yielded substantial benefit. The technology of resistance welding was tested with the use of the Sever-1 installation.

Self-contained automated installations for panoramic radiography, such as the Parus-3, which enables a joint to be monitored in a continuous technological flowline, was used to monitor the joints.

New technical solutions were introduced for earthmoving, insulating and laying operations. High-capacity excavators that have one main prime mover, which raised the range of operating speeds, were used; highly productive cleaning-and-insulating and other machines were used.

On the mountainous portion of the route, in the Carpathians, the pipe length was welded from pipe that had been insulated at the factory. For insulation of the joints of such pipe, special couplings made of radiation-vulcanized thermally shrunk materials were tested which guaranteed high quality of protection against corrosion.

There were many innovations also during the construction of crossings over water obstacles (there were 168 of these). A most complicated inverted siphon--across the Volga--was built more quickly than called for by the standards. Erection of the Soyuz gas pipeline was completed in the middle of the second half of 1978.

At the start of the 10th Five-Year Plan construction also began on an automated system for transporting liquid ammonia that was unique in its engineering solutions. The Tol'yatti-Odessa ammonia trunk pipeline is more than 2,200 km long. This pipeline was the first of its kind laid in our country. The route went from northeast to southwest over the land of several oblasts that had developed industry

and transport, intersecting a multitude of underground utilities and service lines, as well as water obstacles. All this caused great complexity in construction. The raising of an overhead crossing of the ammonia pipeline across the Dnepr was demanding. Many complicated technical problems were solved during testing work on the ammonia pipeline. And although a lag was permitted on certain portions during construction, the builders coped successfully on the whole with the tasks set before them. The work pace during the period of completion of construction of the second line of the ammonia pipeline (the end of 1980) was high. Experience gained during laying of the arterial for transporting liquid ammonia will later on enable pipeline that will deliver raw material to chemical-industry facilities to be erected effectively.

Since the end of 1977 a start has been made on a program associated with bringing gas reserves of the Urengoy field into national economic circulation and with creating a route for transporting gas from Tyumenskaya Oblast to areas of Chelyabinsk, Ufa and Kuybyshev. The buildup of facilities of the Vyngapur field and the laying of a 1,420-mm diameter gas pipeline from there to Chelyabinsk has started.

The Vyngapur-Chelyabinsk arterial is the first strand of the high-capacity Urengoy-Chelyabinsk-Petrovsk-Novoposkov gas-pipeline system.

The Vyngapur-Chelyabinsk gas pipeline route passed through Tyumenskaya, Kurganskaya and Chelyabinskaya oblasti, which are marked by complicated weather conditions, and it crossed 13 large rivers, more than 300 small water obstacles, and about 700 km of swamp. The gas pipeline was erected from pipe 1,220 and 1,420 mm in diameter. Pipe 1,020 and 1,220 mm in diameter was used for crossings over large rivers.

Coordination of the operations and general supervision were exercised by creating a central construction staff in Tyumen'. The staff executed weekly and daily planning of the work of the flowline construction groups, and, when necessary, solved problems associated with change in the design and budget-estimating papers, manipulated resources, generated informational data about construction progress, and so on.

In the West Siberian environment, when the construction season is restricted by the winter period, preparatory work that enables all the construction flowline groups to be supplied in good time with the necessary resources is especially important. Much attention was paid to these operations during construction of the Vyngapur-Chelyabinsk gas pipeline. The freezing-through of swamps was organized, and ice crossings and log roads were constructed. The machines and mechanisms were previously prepared for the operation, a transport scheme for hauling the pipe sections and anchors for the line was planned, docks for unloading pipe were built, crossings over railroad tracks were erected, the facilities for field camp settlements were built up, and so on.

Such progressive methods as ballasting the pipelines (securing them with pile anchors and reinforced-concrete hold-down weights of new design) and the use of concreted pipe and pipe with factory-applied insulation found use during construction of the Vyngapur-Chelyabinsk gas pipeline. Large-scale mounting of the reinforced-concrete hold-down weights was accomplished by means of helicopters. The insulating machines were reequipped for applying two-layer film insulation. Unified tubular members were used for erecting crane components. The gas pipeline was tested by the hydraulic method. After testing, the water was removed by gas, with later passage of a separator.

Analysis of the work experience on the Vnygapur-Chelyabinsk gas pipeline helped in the successful construction of later strands of the gas-pipeline system.

In 1979 a second strand—the Urengoy-Chelyabinsk line was laid, 2 months earlier than the planned deadline. Thirty-eight integrated flow-line groups constructed this gas pipeline, and the 'workers' relay-race" principle—producing the necessary conditions for highly productive work of the interdependent entities—was used widely. Work was done to improve the technical equipment with a view to adapting it to the route's concrete conditions. During construction, an effective technology for the installation of anchoring devices that precludes welding work and enables a rise in labor productivity, which was proposed by VNIIST (All-Union Scientific-Research Institute for the Construction of Trunk Pipelines), was tested. The structure for managing construction of the second line of the Urengoy-Chelyabinsk gas pipeline was the same as during erection of the first strand.

Progressive work methods also were used later during laying of the gas arterial from Chelyabinsk to Novopskov. In 1980 the Urengoy-Chelyabinsk-Petrovsk-Novopskov gas pipeline went to work at design capacity.

Construction of the superlong-distance Surgut-Polotsk oil pipeline, 1,020 and 1,220 mm in diameter, went on simultaneously with that of the Urengoy-Chelyabinsk gas pipeline. For the first time in domestic practice, arterials of such length and capacity were built simultaneously. During the erection of the oil pipeline, the builders surmounted a swamp totaling 560 km in length and 280 km of rocky soil sections and crossed 350 km of water obstacles, including the Ob', Irtysh, Chusovaya, Kama, Volga, Oka, Zapadnaya Dvina and other large rivers.

The construction of pipeline crossings ahead of time was organized. In order to raise the level of industrialization of the construction work and the reliability of operation of the oil pipeline, outfitted box-module pump stations were used.

Responsive management for erecting the pipeline was vested in a central staff.

New highly productive OM122IP cleaning and insulating machines, hydraulic-testing units with a productivity of 1,000 m³ per hour, and four-set self-propelled US41 welding installations with a shelter were used during construction of the oil pipeline.

Work on the section from Surgut to Perm' was strenuous during the 1978-1979 winter. During the winter months the route was cleared; log roads were built and other operations were performed that would provide a work front for the welding-and-erecting and insulating-and-laying columns. The correct assignment of forces and precision and coordination in the actions of the interdependent collectives enabled high work indicators to be achieved during the winter. The use of all available reserves enabled fulfillment of the basic welding, erecting and insulating work on the swampy sections of the Surgut-Polotsk sections prior to the spring flooding season.

The design worked out for organization and management of the construction of the oil pipeline on the Surgut-Gor'kiy section conformed with the new principles of making up design and technological documentation, which were used for the first time during construction of the Vnygapur-Chelyabinsk gas pipeline. The basis of the plan for organizing construction of the linear portion on the Surgut-Perm'-

section of the oil pipeline was a prescribed schedule that coordinated the deadlines and amounts of work of all subunits. The schedule was coordinated to the maximum extent with the originally established scheme for cleaning and testing of the arterial. The direction of movement of the linear flowline groups was chosen so as to depend upon the water sources for the test. This enabled cleaning and testing of the various sections to be started without waiting for full completion of the construction and installing work in the flowline group.

Erection of the oil pipeline was monitored under a system of weekly and daily planning of the amounts of work for each area of construction and each linear operating flowline group. The progress in construction of the oil pipeline on the Surgut-Perm' section confirmed the correctness of the engineering and technological calculations. Experience in erecting this section enabled work effectiveness on later sections of the pipeline route to be raised. The section to Perm' was completed in July 1979; in February 1980 oil pipeline was laid to Gor'kiy, and then oil flowed to Yaroslavl'.

Further development of pipeline construction requires conversion to "turnkey" erection of arterials, to cover the entire investment cycle--from design to turnover of the facilities construction for operation. The management system should be improved through the use of the principles and methods of specific-purpose program tasks.

The progressive technology and work methods and new organizational forms used during the erection of large facilities through the 10th Five-Year Plan will find wide dissemination at those construction projects that will be executed during the 11th Five-Year Plan period. An analysis of the indicators achieved will enable many technical problems to be solved, thereby providing for a rise in the effectiveness of pipeline construction.

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PIPELINE CONSTRUCTION'S PAST, PLANNED CONTRIBUTIONS TO ECONOMY OUTLINED

Moscow STROITEL'STVO TRUBOPROVODOV in Russian No 2, 1981 pp 2-3

[Article: "A Considerable Contribution to Development of the Country's Fuel and Power Complex"]

[Text] Our industry's workers, just like the Soviet people, are greeting the 26th CPSU Congress—a significant event in the life of our party and country and in the history of the international communist and labor movement—with enormous inspiration and patriotic fervor.

The Soviet people, expressing unanimous support for the Leninist party's domestic and foreign policy and its Central Committee and Politburo under Comrade L. I. Brezhnev and actively taking part in the pre-congress socialist competition under the slogan: "For the five-year plan—a shockwork finish, for the 26th CPSU Congress—a worthy greeting," once more demonstrated with new force their unswerving resolve to strengthen our motherland's economic and defensive might by shockwork.

The builders of oil and gas industry facilities celebrated the shockwork weeks of the labor drive in honor of the party congress with great production victories. These included the prescheduled introduction into operation of the Shurtan gas field, which has a capacity of 4 billion m³ of gas per year, and the gas pipeline to the Syrdar'inskaya GRES, which is more than 400 km long. Comrade L. I. Brezhnev congratulated the construction participants on this victory.

This high evaluation of the labor of the collectives that were employed in erecting the first phase of the Shurtan complex evoked a new upsurge of creative effort on the part of all the industry's builders and installers. They made a meaningful contribution also to developing West Siberia's oil and gas complex. Comrade L. I. Brezhnev congratulated the collectives of oil and gas-field workers, builders, and all workers employed in the operations to develop Tyumenskaya Oblast's oil and gas industry on the new labor victory.

The subunits that are erecting the Urengoy-Chelyabinsk-Petrovsk-Novopakov gas pipeline prepared a good labor gift for the congress. In November 1980 Tyumen' crude reached the city of Yaroslavl' over the Surgut-Polotsk pipeline. The 430-km oil pipeline from Samgor' to Batumi was put into operation. Laying of a 1,600-km section of the Tol'yatti-Gorlovka-Odessa ammonia pipeline, the world's largest, was completed.

On 16 December 1980 Minneftegazstroy [Ministry for Construction of Petroleum and Gas Industry Enterprises] reported the completion of 10th Five-Year Plan tasks. In his congratulations to workers, engineers, specialists and white-collar workers of Minneftegazstroy organizations and enterprises, Comrade L. I. Brezhnev emphasized that during the 10th Five-Year Plan the industry's workers had solved major special-purpose tasks of building up facilities for the oil and gas fields of West Siberia, Kazakhstan, the Komi ASSR and other regions of the country and the erection of high-capacity trunk pipelines and gas-treatment plants, and that doing so was a considerable contribution to the further development of the country's fuel-and-power complex and to the solution of the social tasks defined by the 25th CPSU Congress.

During the last five-year plan, the ministry's collectives carried out a contracting work program that was almost equal in volume to the programs of the two preceding five-year periods. The amount of construction and installing work done grew by 36 percent over the Ninth Five-Year Plan.

Introduced into operation were 50,000 km of trunk pipelines, including more than 45,000 km of pipeline for transporting gas, crude and petroleum product. Total length of the arterials turned over for operation, calculated on the basis of an adjusted diameter, was 56,400 km, compared with 50,500 km during the Ninth Five-Year Plan.

Special-purpose tasks to develop pipeline transport that were called for by the 'Main Directions for Development of the USSR's National Economy During 1976-1980' were carried out.

The total length of gas trunk pipelines in the country reached 132,400 km, of which 125,000 km have gone to work at their designed capacity. In this category are the huge Urengoy-Punga-Ukhta-Torzhok, Urengoy-Punga-Nizhnyaya Tura-Perm'-Kazan'-Gor'kiy-Moscow, Urengoy-Vyngapur-Chelyabinsk and other gas-transporting systems.

In collaboration with CEMA-member countries, a huge integration construction project--the Soyuz gas pipeline--was completed. This unique underground arterial has been providing for regular deliveries of gas for the needs of the Soviet Union, as well as of the state of socialist collaboration that participated in its construction, since January 1979.

Eleven thousand kilometers of pipeline 1,420 mm in diameter were erected. During the Ninth Five-Year Plan the length of such pipelines was 3,700 km. The share of these arterials in the total length of pipelines introduced has risen to 19 percent.

Two hundred and nine compressor stations with a total power of 10.2 million kw were built. Thus, during the last five-year period, the total power of the compressor stations operating in the country more than doubled.

During the 10th Five-Year Plan a new gas-industry subbranch--gas chemicals--was formed. Joint efforts of Minneftegazstroy, Minenergo [Ministry of Power and Electrification], Minpromstroy [Ministry of Industrial Construction] and other ministries and agencies created and brought up to design capacity the country's large Orenburg gas-and-chemicals complex, which has a natural-gas refining volume of

46 billion m^3 per year and yields 1.5 million tons of a valuable chemical raw material—sulfur.

The total length of the country's oil trunk pipelines reached 59,000 km. During the five-year period the Nizhnevartovsk-Kurgan-Kuybyshev-Lisichansk-Odessa, Kuybyshev-Tikhoretsk-Novorossiysk, Surgut-Gor'kiy, Oask-Pavlodar and other oil trunk pipeline systems were built and went to work at design capacity.

The main tasks for introducing capacity at oil and gas fields were carried out. During the five-year plan the capacity of installations for integrated treatment of gas increased by 168 billion m^3 per year, including 102 billion m^3 per year in West Siberia, or a 2.4-fold increase over the Ninth Five-Year Plan. Installations for treating 199 million tons of crude (a 2.5-fold growth), 121 million tons in West Siberia, went into operation at oilfield facilities.

The capacity of the gas-treatment plants that were built practically doubled, reaching 15.6 billion m^3 per year.

For the gas industry, 37.1 percent more work was done than during the Ninth Five-Year Plan. The rate of growth was 129.6 percent. In the oil industry, 23.6 percent more work was done, and the pace of growth was 128.8 percent.

The plan for contracting work for 1976-1980 was completed ahead of schedule in West Siberia—in June of last year. The program mastered was 2.3-fold greater than for the Ninth Five-Year Plan. Growth amounted to 65.5 percent.

A major social program was carried out. For oil and gas field workers, geologists and builders, apartment houses with a total of 6.8 million m^2 of space were turned over for use, including 2.5 million m^2 in West Siberia. Schools for 76,700 pupils, preschool institutions for 43,200 children, hospitals for 5,300 beds and polyclinics for 11,400 outpatients were built.

Large facilities were built for Minavtoprom [Ministry of Automotive Transport], Ministroydormash [Ministry of Construction, Road and Municipal Machine Building] and Minkhimmash [Ministry of Chemical and Petroleum Machine Building]. Important facilities for light industry, the food industry and the meat-and-dairy industry were erected and turned over for operation.

For agriculture, 242 million rubles' worth of work was done under a plan that called for 207 million rubles' worth.

The industry's production base was further developed, especially in West Siberia. In all, 28 enterprises were put into operation. Capacity for producing prefabricated reinforced concrete increased by 933,000 m^3 , including articles for large-panel housing construction by 590,000 m^2 , and capacity for building machinery and making repairs grew by 24 million rubles' worth. Enterprises were created to produce 40 million rubles' worth of outfitted modules and 4,000 modules for containerized-type buildings for rotating-duty type housing settlements.

Industrial product output during the last five-year plan increased 1.5-fold over 1971-1975, more than 600 million rubles' worth of machinebuilding and metalworking products having been manufactured.

The serialized production of special pipeline equipment was organized. The output of a broad products mix of constructional structure and material was organized.

The achievements of the industry's collectives inspire confidence that they will be able to carry out even more complicated tasks.

During the 11th Five-Year Plan, which has started, builders and installers are to work toward new and higher goals for developing pipeline transport and for erecting facilities for the oil, gas, coal and chemical industries and other branches of the national economy. These goals were defined with precision by the CPSU Central Committee's draft, "Main Directions for Economic and Social Development of the USSR During 1981-1985 and During the Period up to 1990," in the discussion of which workers of Minneftegazstroy organizations and enterprises have taken part. A multitude of valuable recommendations, suggestions and desires were expressed in speeches at meetings and production conferences, in the press, and in workers' letters.

In order to provide in 1985 for the recovery of 620-645 million tons of oil and gas condensate and of 600-640 billion m³ of gas, as called for by the CPSU Central Committee's draft for the 26th party congress, a sharp increase in construction, primarily of trunk pipelines, will be required of the industry's subunits. During 1981-1985, 50,000 km of trunk pipelines for transporting oil, gas and petroleum product, including 32,000 km of gas pipelines, 11,500 km of oil pipelines, and 6,500 km of petroleum-product pipelines are to be built and put into operation. According to preliminary estimates, pipeline construction at oil and gas field facilities will more than double.

In order to allow for the transport of Tyumen' gas to the country's central and western regions, 16,600 km of 1,420-mm diameter gas pipeline are to be laid during the new five-year plan, which is 1.7-fold the amount laid in 1976-1980. Even now preparations are being made and will be carried out for converting in 1982-1983 to the construction of gas pipelines designed for a pressure of 10 MPa and, later, for a pressure of 12 MPa.

It is planned to build 280 compressor stations on trunk gas pipelines, gas fields and underground gas storage and 90 pump stations on crude-oil pipelines. The power of the gas transfer-pumping units installed will be 17 million KW, or double the level achieved during the Tenth Five-Year Plan.

The Urengoy-Gryazovets, Urengoy-Petrovsk, Urengoy-Novopskov, Yamburg-Yelets (the first and second lines), Gryazovets-Torzhok, Torzhok-Ivatsevichi (the third line), Yelets-Kursk, Kursk-Didan'ka, Yelets-Dikan'ka and other gas pipelines will be put into operation.

Oil-recovery capacity is to be created at a rapid pace in regions of West Siberia, Kazakhstan, and the Komi ASSR, and facilities at gas fields in Tyumenskaya Oblast and the Turkmen SSR are to be built up. It is planned to undertake the construction of a complex for recovering and treating gas and condensate in Astrakhanskaya Oblast.

Important tasks have been set for Minneftegazstroy organizations and enterprises for the first year of the 11th Five-Year Plan.

It is planned to build and put into operation in 1981 about 16,000 km of trunk pipeline. In order to support the transport of oil and gas, more than 50 compressor stations are to be built on gas trunk pipelines, at gas field facilities and at underground gas storage, and more than 30 pump stations are to be built on oil pipelines.

The goals for further forward movement are difficult, but they are completely realistic. The bases for this being so are the achievements of Soviet science and technology, machinebuilding, metallurgy and the whole national economy.

Collectives of the industry's subunits have at their disposal major reserves which should be systematically and persistently brought into action in the interests of production.

Organizing precise and uninterrupted operation of the specialized service for making engineering preparations requires major attention.

It is necessary to introduce energetically highly productive machines and mechanisms and equipment for minor mechanization and to cut in every way possible the share of manual labor in construction and installing work.

Managers of organizations and enterprises and all builders and installers are called upon to be more active in introducing and disseminating advanced methods and ways of doing work, in utilizing equipment more completely, and in driving against worktime losses.

It is also necessary, using skillfully the experience that has been gained, to further develop socialist competition. It is the duty of each supervisor and each specialist to master persistently the art of management and to pay attention constantly to educating personnel in the spirit of socialist enterprisingness and high consciousness of and responsibility for the final result of the work.

The method of continuous planning for flowline construction, in combination with cost accounting at the lower levels and competition among interdependent entities according to the "workers' relay race" principle, must be introduced more daringly. One should be concerned that everything that is valuable, that will promote a rise in efficiency and work quality, a reduction in the time taken to construct facilities and an improvement in the industry's state of affairs, will be reflected in counterplans and socialist commitments.

Counterplans and socialist commitments must be aimed primarily toward a further rise in the rate of growth of labor productivity, improvement in the use of equipment, savings of material, financial and labor resources, and acceleration of the pace of scientific and technical progress.

The successes that have been achieved in building oil and gas industry facilities and the new labor gifts of Minneftegazstroy collectives for the 26th CPSU Congress testify to the high political consciousness of the industry's workers and to their unswerving readiness to successfully execute the plans for building communism contemplated by the party.

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TRADE-UNION ROLE IN PIPELINE CONSTRUCTION TOLD

Moscow STROITEL'STVO TRUBOPROVODOV in Russian No 2, 1981 pp 4-6

[Article by V. T. Sedenko, chairman of the Central Committee of the Trade Union of Oil and Gas Industry Workers: "Stages in the Path That Has Been Trod, and Tasks and Outlooks"]

[Text] The results of the 10th Five-Year Plan testify to the fruitfulness of and the vital necessity of the 25th CPSU Congress's decisions on developing the whole national economy and, on that basis, on achieving further growth in the welfare and cultural level of the Soviet people.

The five-year plan that has been completed was marked by a still firmer politico-ideological unity of Soviet society, wider participation of workers in control of the state, and a rise in the role and activeness of trade unions, Komsomol, and other social organizations and laboring collectives.

All our achievements are the result of the selfless labor of the working class, the kolkhoz peasantry and the intelligentsia and the nationwide socialist competition that is being promoted. During the 10th Five-Year Plan the guiding and directing role of the Communist Party and its multifaceted organizing and political activity for mobilizing the Soviet people for successful solution of economic and cultural construction tasks manifested themselves with new strength.

Soviet trade unions are a reliable support for the Leninist party in meeting the economic, social and cultural tasks of building communism. The CPSU is creating all the prerequisites for more complete fulfillment by the trade unions of their basic functions and is viewing them as an influential force for society. The party's aims, for which no interests are higher than the interests of the people, are simultaneously also the aims of the trade unions.

The Trade Union of Oil and Gas Industry Workers, which was established 1 March 1977 after a subdividing of the Trade Union of Oil, Chemical and Gas Industry Workers, has taken a direct part in meeting the tasks that the 25th party congress set. Establishment of the Trade Union of Oil and Gas Industry Workers—these industries are the basic fuel-and-power industries of the country—was a concrete implementation of the 25th CPSU Congress's instructions about further improving the branch-of-the-economy principle of participation by production trade unions in controlling the national economy and about bringing their structure into full correspondence with the industry's management structure.

In its practical activity the trade union's central committee has been guided by the decisions of the 25th CPSU Congress and the 16th USSR Trade Union Congress, the principles and conclusions laid down in the speech of CPSU Central Committee General Secretary Comrade L. I. Brezhnev at the 16th USSR Trade Union Congress, and the decisions of later CPSU Central Committee and AUCCTU plenums, the first industry congress, and plenums of the trade union's central committee.

Two main directions can be discerned in the activity of the Trade Union of Oil and Gas Industry Workers: first--joint work with the ministries and determination of the way to solve the main economic and social questions of the industry's development; and second--supervision locally by trade-union committees, and a heightening of the specificity and efficiency of their work, a focusing of this work on solution of the most important tasks and the development of initiative and adherence to principle.

In the area of economic activity the main attention has been paid to further development of the labor activity of the masses and the mobilization of their creative efforts toward an all-around rise in effectiveness and work quality in the fulfillment of state plan tasks.

For these purposes, the trade union's central committee, based upon concrete tasks for developing the industry, worked out jointly with ministries the terms for All-Union competition; set its tasks, forms, types and procedure for summing up the results; conducted meetings of the industry's activists on the results of the work for the year and the tasks for the new period; organized special-purpose forms of competition--for the most rapid introduction into operation of new oil and gas fields, pipelines and pump and compressor stations which are of national economic significance; approved valuable initiatives and slogans by laboring collectives and worked to disseminate them; planned and executed measures for helping lagging collectives; organized industry inspections and contests; and monitored the development of competition locally and extended practical assistance in this work.

The progress of the competition, the best production experience, and the causes of nonfulfillment by various enterprises of plans and adopted commitments were systematically examined at plenums and sessions of the Presidium of the trade union's central committee, jointly with colleagues from the ministries, and at meetings of economic and trade-union workers--at both industry meetings and regional meetings.

During the 10th Five-Year Plan more than 55,000 km of trunk pipeline were built, their length now totaling almost 220,000 km, more than 300 compressor and pump stations were erected, and gas-treatments with a capacity of 15.6 billion m³ of gas per year were introduced.

The remarkable achievements of West Siberia's workers, who increased the recovery of oil more than 2-fold and of natural gas almost 4.5-fold, were noted at the October 1980 plenum of the CPSU Central Committee.

The competition to carry out 10th Five-Year Plan tasks ahead of time and to do the greatest amount of work with the least manpower was widely developed at oil and gas industry construction projects.

The trade union central committee and Minneftegazstroy [Ministry of Construction of Petroleum and Gas Industry Enterprises] took measures to improve organization of the competition. Staffs to supervise construction were created at the most important facilities, terms for competing in accordance with the "workers' relay-race" principle were worked out, and funds for rewarding the winners were allocated; and monitoring over the status of the living conditions of those residing in field camps and the organization of their recreation, eating, and so on, was intensified.

There are many examples of precise, coordinated work by builders and clients: the attainment of the Medvezh'ye gas field's design capacity and the introduction into operation of the Urengoy and Vyngapur gas fields ahead of time, completion of the year's program for operations on an international construction project--the Soyuz gas pipeline--by the first anniversary of the new USSR Constitution, and the start-up of the third line of the Orenburg gas and chemical complex ahead of time.

In 1980 alone the Chelyabinsk-Petrovsk-Novopskov gas pipeline, sections of the Urengoy-Gryazovets, Parabel'-Kuzbass and Castrogozhsk-Shebelinka gas pipelines, the Perm'-Gor'kiy-Yaroslavl' and Samgori-Batumi oil pipelines, and many other pipelines went into operation.

On the eve of the 63d anniversary of October, the collectives of Mubarekgazpromstroy [Trust for the Construction of Gas-Industry Enterprises at Mubarek], Sredazneftegazstroy [Trust for the Construction of Oil and Gas Industry Enterprises in Central Asia], Sredazneftegazmontazh [Trust for Erecting Facilities for Central Asian Oil and Gas Industries], and Bukharagazpromstroy [Trust for the Construction of Gas Industry Enterprises at Bukhara] reported successful fulfillment of socialist commitments to complete the construction of facilities at the Shurtan gas field and of the Shurtan-Syrdar'inskaya GRES gas pipeline and to deliver gas to the electric-power station ahead of schedule.

However, along with the successes, deficiencies in organizing the competition also should be noted. A portion of the workers of brigades of the leading trades are not fulfilling the tasks set. Individual trade-union committees are not engaging intensely in organizing competition, and they do not realize its possibilities for raising work quality, for strengthening labor discipline and for making rational use of worktime. Competition results often amount to no more than dissemination of the class places, advanced experience is not brought out, and no measures for helping the laggards are planned.

The trade union took part in meeting such social problems as increasing the wage and improving the setting of work norms, further raising the role of norms in incentives and the carrying out of plan tasks, and expanding the use of technically sound labor norms and of standardized tasks. The share of technically substantiated norms right now is 96 percent in the oil industry, 88.3 percent in the gas industry, and 98.8 percent in construction.

In 4 years and 8 months of the 10th Five-Year Plan the average monthly wage per industrial-production worker rose 25 percent in Minnefteprom [Ministry of Oil Industry], 27.8 percent in Mingazprom [Ministry of Gas Industry] and 30.8 percent in Minneftegazstroy. More than 230,000 workers in the nonproduction sphere have been transferred to new, higher pay rates.

During the five-year plan more than 8 million m² of housing, preschool institutions for 52,000 children and general-education schools for 61,700 pupils were built for the workers of our branch. The network of enterprises for shopping and social eating and medical, cultural and personal-amenity institutions grew substantially.

Housing totaling 2.4 million m² in area were put into operation for Minneftegaz-stroy workers in 4.5 years of the 10th Five-Year Plan, enabling housing conditions for more than 200,000 people to be improved. Dormitories for 51,000 were built in accordance with modern standard designs. Preschool institutions for 12,840 children, three Pioneer camps for 720 persons, and two sanatorium-rest homes for 200 were put into operation. The existence of an industrywide network of health-improvement institutions enables annual vacations to be organized for up to 70,000 builders and about 40,000 school-age children.

As a result of work done by trade-union committees, jointly with economic supervisors and public-health organs, to prevent illness, worktime losses as a result of temporary disablement were steadily lowered and reduced during the past 4 years by 106 days (per 100 workers).

The trade-union central committee pays great attention to improving the working conditions and job safety of blue-collar and white-collar workers. The basis of this work is the conduct of measures to prevent production injuries, a strengthening of monitoring over the observance of work-safety norms and rules, the fulfillment of five-year integrated plans for improving working conditions and job safety, and the execution of sanitary and health-improvement measures.

For these purposes, integrated brigades are regularly sent into the field to make inspections, industry conferences on the indicated problems are conducted with the ministries, and many questions are examined at joint sessions with ministry colleagues and in the trade union's presidium and central-committee plenums.

At the suggestion of the trade-union central committee, questions of labor safety are vested in first deputy ministers. In many associations and trusts, work-safety departments have been established, or the post of deputy chief engineer for these questions has been introduced. A council for the selective examination of designs and a council for social monitoring of the conduct of labor-safety scientific research and the introduction of its results into production work have been established under the trade union's central committee and are at work.

More than 600 million rubles were spent in the first 4 years of the five-year plan to carry out the comprehensive plans for improving working and safety conditions and sanitary and health-improvement measures. This enabled, for example, the working conditions for 90,000 people to be improved. During these years the overall production-injury rate was reduced by 15.4 percent.

However, radical improvement still has not been achieved in labor-safety work, and production injury rates are being lowered slowly. Trade-union and economic organs must take more active steps, intensify preventive work, and educate workers in the spirit of strict observance of the rules and norms for both labor safety and discipline in production work. The responsibility of labor collective supervisors, trade-union committees and technical inspectorates for labor safety should be increased.

The execution of measures to strengthen and preserve the health of workers, the construction of cultural and personal-amenity facilities and the improvement of shopping and personal-amenity services have had a positive effect on the forming of stable collectives, reduction of worktime losses, and the creation of a good microclimate at the production facility.

In accordance with the party's requirements for a further rise in the level of communist education, the trade-union central committee has directed that trade-union organization activity provide for a comprehensive approach to the cultural education of workers and instill ideological conviction, a communist attitude toward work, and high moral qualities in workers. Attention has been given to developing physical culture and sports.

The trade-union central committee is constantly engaged in improving the organizational work of trade-union committees, and it strives to raise it to the level of modern requirements. Instructions about improving the work style and methods of trade-union organs, strict observance of Leninist norms in trade-union life, and the principle of collegiality of supervision lie at the basis of our practical activity.

The trade union's central committee strives to exert its influence on production and the solution of social tasks through middle-level trade-union committees and the trades committees of associations and primary organizations, which are at the leading edge of economic and cultural construction. In past years the committees and primary trades organizations have grown numerically and have become much stronger.

In considering the rising demands on trade-union personnel, the trade union's central committee has done much to train and teach them and it has extended assistance to trade-union committees in this area. The positive experience of a number of trade-union committees and vocational groups has been generalized and disseminated, and experience in training and the conducting of workers' meetings has been studied. Monitoring of and assistance in the preparation of reports and the conduct of elections of trade-union organs have been accomplished.

The trade-union central committee has tried to see to it that trade-union committee work corresponds more fully to the rights and degree of responsibility of the committees. We have tried to raise the specificity and effectiveness of the work of the trade-union committees and to approach with greater exactingness the evaluation of their activity, which is aimed at meeting the economic and social tasks of the laboring collectives.

The October 1980 CPSU Central Committee Plenum paid much attention to questions of further developing the country's fuel and power complex. The state plan for economic and social development for 1981 for the country as a whole has set the task of recovering 610 million tons of oil and of gas condensate, which is 8 million tons more than the plan for 1980. It is planned to recover 458 billion m³ of gas, or 23 billion m³ more than in 1980.

Minneftegazstroy is to do an enormous amount of construction and installing work—more than 15,000 km of oil and gas trunk pipelines, about 100 compressor and pump stations, 5 installations for the integrated preparation of 40.8 billion m³ of gas per year, more than 590,000 m³ of tank capacity for crude oil, and 6,900 km of radio-relay and cable lines for communications are to be introduced, and

1.8 million m² of housing are to be built. Among the most important facilities for 1981 are the Urengoy-Nadym-Punga-Ukhta-Gryazovets and Urengoy-Nizhnyaya Tura-Petrovsk gas pipelines, the Perm'-Al'met'yevsk and Tyumen'-Yurgamysh oil pipelines, and other pipelines. Construction of the Surgut-Polotsk oil pipeline is to be completed, and the Lokosovskoye and Mubarek gas-treatment plants, with capacities, respectively, of 1 and 5 billion m³ of gas per year, are to be built.

Under 1981 plans, housing construction for our industry's workers will increase by 19 percent, while in West Siberia it will increase 38 percent. Preschool institutions for 17,500 children and general-education schools for 16,100 pupils will be introduced, and the construction of hospitals, polyclinics, sanatoria-rest homes, Pioneer camps and vacation centers, and social eating enterprises will continue.

New, great and important tasks to meet the country's ever-rising requirements for oil and gas have been set for oil and gas industry collectives and for the builders of oil and gas industry facilities during the 11th Five-Year Plan in the CPSU Central Committee's draft for the 26th party congress, "Main Directions for the Economic and Social Development of the USSR During 1981-1985 and During the Period up to 1990."

It is necessary in 1985 to provide for the recovery of 620-645 million tons of oil (and gas condensate) and to speed up the introduction into industrial development of new oil deposits, based upon the wide use of industrialized construction methods and the use of outfitted-module equipment that incorporates a high degree of factory fabrication.

Natural-gas recovery is to be brought up to 600-640 billion m³ in 1985, and highly productive modular installations for treating gas are to be introduced at gas-field facilities.

Minneftegazstroy workers have been set the task of creating the necessary material conditions for supporting a further increase in oil and gas recovery and for accelerating the development of pipeline transport for petroleum product, oil and gas. It is necessary to raise construction quality, to take measures to greatly increase the productivity of the gas pipelines that are being erected, to expand cultural and personal-amenities construction, and to introduce the technology of around-the-clock construction of pipeline in regions difficult of access where natural and climatic conditions are difficult.

Now, when the outlook is distinctly visible, the main thing is to mobilize the masses for fulfillment and overfulfillment of the tasks. Trade-union committees should increase the activeness of competition and help in every possible way, everywhere, to create an environment of high exactingness and a high state of organization, in order to achieve precise implementation of party and government directives and of in-house decisions.

Trade-union committees are obligated to persistently implement the instruction of CPSU Central Committee General Secretary Comrade L. I. Brezhnev that an attentive, concerned attitude toward the person should permeate the work style of party, Soviet and economic organs and, of course, the trade unions.

It is the direct duty of each trade-union worker to note in time and to support in every way possible creative initiatives, to oppose decisively any attempts to

ignore the lawful rights and interests of the workers, to constantly advise people, and to know and consider their moods and needs.

Organizational and educational work in collectives should be so constructed that it will help to unite the workers, to engender in them a striving to work better and more efficiently, and to create more favorable conditions for confirming the moral principles and norms of the Soviet way of life.

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NEW INDICATOR FOR PIPELINE CONSTRUCTION EFFECTIVENESS URGED

Moscow STROITEL'STVO I RUBOPROVODOV in Russian No 2, 1981 p 7

[Article by B. S. Vaynshteyn of NIPIESUnftegazstroy [Scientific-Research and Design Institute for Economic Control Systems for Ministry of Construction of Petroleum and Gas Industry Enterprises]: "For a Further Rise in Construction Effectiveness"]

[Excerpt]: The CPSU Central Committee's draft for the 26th party congress, "Main Directions for Economic and Social Development of the USSR During 1981-1985 and During the Period up to 1990," points out the need to introduce, at all levels of supervision of economics work, plan indicators that are more improved and are differentiated to take the specifics of the industry into account and which reflect more completely and stimulate growth in production and a rise in its effectiveness, labor productivity, and savings of worktime, metal, energy and other resources.

In pipeline construction, as in other industries, the use of specific indicators is required.

The builders' activity is evaluated, as a rule, according to the length of pipelines put into operation. However, not only length but also to a great degree capacity influences the effectiveness of an arterial.

During the 10th Five-Year Plan the construction of gas pipelines of a new class—1,420 mm in diameter and designed for an operating pressure of 7.5 MPa and a throughput of up to 35 billion m³—was started. Such a gas pipeline carries a flow of energy sufficient to supply a thermal electric-power station of 20 million kW capacity.

Is it legitimate to compare such a structure merely in accordance with length, with the firstlings of pipeline construction, such as, for example, Dashava-Kiev or Stavropol'-Moscow?

NIPIESUnftegazstroy has proposed a new index for trunk gas pipelines—effective length. The base capacity (transport work) of 1 km of the network at the 1970 level was adopted as the unit of measurement. With the use of such an indicator, there is a substantial gap between effective and nominal pipeline length, especially for the gas pipelines that were built during the 10th Five-Year Plan, such as the Urengoy-Chelyabinsk, Nadym-Punga-Torzhok and other lines. During the 10th Five-Year Plan alone, the total effective length of the USSR's gas-supply system increased almost 2-fold in comparison with 1970, almost 4-fold in 10 years.

These computational figures are confirmed by statistical data--the content turnover of trunk gas pipelines increased in the decade, from 164.2 trillion $\text{m}^3\text{-km}$ to about 600 trillion $\text{m}^3\text{-km}$.

Calculations for oil pipelines indicate that in 10 years their nominal length grew by 86 percent, but the effective length (average throughput, based upon the 1970 level) increased 3.4-fold.

Apparently it is desirable to establish tasks for trunk pipeline construction for the 11th Five-Year Plan not just according to nominal length but also according to effective length. This indicator contains a comprehensive technical and economic description of the construction and it reflects also the technical level--diameter, pressure, siting of compressor stations, and the economic benefit (amount of transport work), whereas the nominal length is only a physical characteristic of the pipeline.

Effective length is a specific indicator for the industry. It reflects more completely the growth of production and stimulates a rise in its effectiveness.

The problem of planning on the basis of special-purpose programs also is urgent. The CPSU Central Committee's draft for the 26th party congress set the tasks: use special-purpose integrated programs more widely as organic component parts of state long-range plans for economic and social development, and increase their validity and their orientation toward the final results and the solution of concrete scientific, technical, economic and social problems. Among the national economy's programs, the program for developing the West Siberian oil and gas complex is especially singled out. These branches are now interacting here: the oil, gas, geological and construction branches of the economy. In the near future the inclusion of power-engineering, oil-refining and petrochemicals, as well as branches of the production and social infrastructure, can be expected. Thus a multi-industry territorial complex (TPK) will be formed. In 1985 the recovery of oil (including gas condensate) should be brought up to 385-395 million tons, the recovery of gas--330-370 billion m^3 .

The role of construction organizations in solving the tasks set for the special-purpose program for developing the West-Siberian oil and gas complex is honored and responsible, since they are called upon to provide for growth in capacity, which is a decisive factor in increasing oil and gas recovery.

The Minneftegazstroy Board adopted in June 1980 a specific program (an industry program) for development of the West Siberian oil and gas complex. The basic purpose of it is to provide for the fulfillment of party-set tasks for oil and gas recovery and transport. The program includes tasks (second-level targets) for the doers--associations, main administrations and elements of ministry staffs. It should be noted that experience in forming special-purpose integrated programs in oil and gas construction is not great, so it is especially important from the first steps to organize well a well-thought out and effective system for managing the program.

It is desirable that associations, main administrations and large enterprises, as well as scientific-research and design-development organizations, formulate their special-purpose programs for development of the West Siberian oil and gas complex to take into account the tasks that emanate from the ministry's special-purpose program.

The ministry's board has also adopted a specific-purpose program of national-economy scale--the development of pipeline transport and, moreover, several industry programs. These include programs for social development of the branch, outfitted-module construction, and improvement of the economic mechanism.

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FUELS

BRIEFS

NEW USSR GAS MINISTER--The USSR Supreme Soviet Presidium has named Comrade Vasiliy Aleksandrovich Dinkov USSR Minister of Gas Industry. [Text] [Baku VYSHKA in Russian 10 May 81 p 2] 11409

NEW PERMSKAYA OBLAST OILFIELD--Permskaya Oblast--Oilfield workers have plotted a new field--Tavda--on Permskaya Oblast's geological map, near its lower edge. This is the first discovery of the 11th Five-Year Plan. The well's flow is 32 tons of liquid fuel per day. A. Medvedyuk's brigade drilled the discovery well, and S. Perevozchikov's brigade from the Kungur Exploratory Drilling Administration did the testing. This collective is now numbered today among the winners in the socialist competition of the Ministry of Petroleum Industry. Since the start of the year it has been ahead of schedule by 10,000 meters of penetration in development drilling and by one and a half thousand meters in exploratory drilling. [By V. Ukolov] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 8 May 81 p 1] 11409

URENGOY GAS REACHES MOSCOW--Moscow--Urengoy field gas has begun to enter the capital's gas network. Erection of the large Urengoy-Gryazovets-Moscow trunk gas pipeline was completed ahead of time. Tests that have been conducted indicated that the route was built with high quality, and all its systems are distinguished by reliability. "The arterial will enable tens of millions of cubic meters of gas to be delivered per day," said Deputy Minister of the Construction of Petroleum and Gas Industry Enterprises G. N. Sudobin. "This will greatly improve the supplying of cities, towns and industrial centers of the country's European portion with valuable raw material." Erection of the line was a test of the courage of thousands of construction workers. The arterial was laid across swamps, marshes and rivers. It is 2,800 km long. Muscovite construction workers, who made a major contribution to speeding up erection of the gas pipeline, worked excellently here and with high quality in their work. When the route was being built, a number of new machines and progressive technology, which now will receive tickets to other construction projects, were used successfully. The Urengoy-Gryazovets-Moscow pipeline is one of seven gas arterials that are to be started up that will have their origin in the oilfields of West Siberia during the 11th Five-Year Plan. Each year their importance in solving one of the important tasks--the creation of a fuel and power-engineering complex--will grow. Therefore, the accelerated development of this region was called for by 26th CPSU Congress decisions. [By TASS] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 6 May 81 p 1] 11409

TYUMEN' GEOLOGISTS' ACCOMPLISHMENTS--Tyumen', 27 April--The results of the geologists' competition were totaled up on the eve of the May First holiday. The

oblast's geological map has been augmented this year by six new fields of oil, gas and condensate. This is a remarkable success for the Siberian explorers of the underground, who are carrying out their responsibilities with a remarkable outstripping of goals. The meaningful "finds" are credited to the collectives of the Tazovskiy, Surgut, Pravdinskiy, Krasnolenskiy and Tarko-Sale expeditions. [By V. Lisin] [Text] [Moscow PRAVDA in Russian 28 Apr 81 p 1] 11409

MULTILAYER GAS PIPE PRODUCTION--Khartsyysk, Donetskaya Oblast--The first section for the output of multilayer pipe went into operation yesterday at the Khartsyysk Pipe Plant. This product, which is intended for high-pressure gas pipelines, can withstand a pressure of 100 atmospheres at low temperatures. This year the enterprise's collective has committed itself to delivering to consumers a million tons of this product in a northern version. [By TASS] [Text] [Moscow SOTSIALISTI-CHESKAYA INDUSTRIYA in Russian 17 May 81 p 2] 11409

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